

L 25650-65

ACCESSION NR: AR5000709

2

at 175C. The following 6 cross-linked compounds of the dimethylsiloxane and glycoxysilane series, with OH groups at the ends of the branching chains, were synthesized: tetrakis-(octamethyl-tetrasiloxano-9-hydroxy)-silane $C_{32}H_{100}O_{20}Si_{17}$; tetrakis-(hexadecamethyl-octasiloxano-17-hydroxy)-silane $C_{64}H_{196}O_{36}Si_{33}$; tetrakis-(octatetracontamethyl-tetraeicosasiloxano-49-hydroxy)-silane $C_{192}H_{580}O_{100}Si_{97}$; tetrakis-(ethyleneglycoxy)-silane $C_8H_{20}O_8Si$; tetrakis-(diethyleneglycoxy)-silane; and phenyl-tris-(ethyleneglycoxy)-silane $C_{16}H_{36}O_{12}Si$. Values for the refractive index, density and molar refraction of the synthesized compounds are given, and it is pointed out that the density decreases with increasing molecular weight. The authors studied the condensation of tetrakis-(octamethyl-tetrasiloxano-9-hydroxy)-silane at 200C for which a reaction scheme is given, as well as that of the first 3 cross-linked compounds listed above with methylphenyldichlorosilane, resulting in products which were viscous at room temperature, readily soluble in xylene and CCl_4 , and had a low glass temperature of about -120C. The authors also obtained insoluble elastic products with a glass temperature of about -120C. The reaction of the last 3 cross-linked glycoxysilanes listed above with hexamethylen- and m-tolylene diisocyanate at 20C leads to the formation of refractory (up to 300C) insoluble products which do not decompose when heated to 300C (Differential thermal analysis). V. Tolstoguzov

SUB CODE: OC

ENCL: 00

Card 2/2

ACCESSION NR: AT4033983

S/0000/63/000/000/0042/0044

AUTHOR: Andrianov, K. A.; Kurasheva, N. A.; Taraymovich, I. A.

TITLE: Polycondensation reaction of α, ω -dihydroxydimethylsiloxane oligomers with bis-(trimethylsiloxy)-diethoxysilane

SOURCE: Geterotsepnny*ya vy*sokomolekulyarny*ya soyedineniya (Heterochain macro-molecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 42-44

TOPIC TAGS: polymerization, polymer, silicon polymer, silicone, siloxane, polycondensation

ABSTRACT: In a study of the polycondensation of α, ω -dihydroxydimethylsiloxane oligomers with bis-(triethylsiloxy)-diethoxysilane, the authors prepared products with a molecular weight of 131000, 126000, 132000, 55000 and 45700 and a respective vitrification temperature of -105, -110, -118, -100 and -100C. Ethyl alcohol was a byproduct of the reaction which was conducted up to 200C and, depending on the number of (Si -- O) groups in the reacting oligomer, which varied from 9, 13, 50, or 70 to 153, required 40.5, 25, 78.5, 35 and 90 hrs., respectively, for completion. The authors describe the reaction by the following scheme:

Card 1/2

ACCESSION NR: AT4033984

S/0000/63/000/000/0045/0052

AUTHOR: Zhdanov, A. A.; Andrianov, K. A.

TITLE: Mechanism of formation of Al containing silicones in the reaction of aluminum butylate with dialkyl (alkyl) diacetoxysilanes

SOURCE: Geterotsepynye vyssokomolekulyarnyye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 45-52

TOPIC TAGS: aluminum butylate, polymer, silicone, acetoxysilane, butyl acetate, aluminum containing silicone, dimethyldiacetoxysilane, phenylmethyldiacetoxysilane, diethyldiacetoxysilane, trimethylacetoxysilane, polycondensation, heterofunctional polycondensation, acetate group, acetoxy group, butoxy group, polyorganosiloxane

ABSTRACT: Mixtures of aluminum butylate (I; b.p. 296-297C/24 mm) with phenylmethyldiacetoxysilane (II; b.p. 127C/7 mm, acetate group (49.78%), diethyldiacetoxysilane (III; b.p. 95-97C/20 mm; ag 58.52%), dimethyldiacetoxysilane (IV; b.p. 65-67C/20 mm; ag 66.76%) or trimethylacetoxysilane (V; b.p. 102-105C/ag 45.18%) were heated in an oil bath to 200C and kept at that temperature for 30 hours to study the formation of polymers containing the Si-O-Al bond. Reaction with II, III and IV proceeded rapidly at 140-160C, with formation of a polymer product (Al-containing silicone) and precipitation of butyl acetate. Dimethyldibutoxysil-

Cord 1/2

ACCESSION NR: AT4033984

lane and diethyldibutoxysilane were byproducts of the reactions with III and IV. The reaction pattern followed the mechanism of heterofunctional polycondensation, but also involved an exchange of acetoxy- groups in Si for butoxy- groups. Reaction with V served to demonstrate a dual reactive capability (i.e. the positive charge on the C atom of the carbonyl group increases or decreases). Orig. art. has: 2 tables, 3 graphs, and numerous chemical formulas.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Metalloorganic Compounds AN SSSR)

SUBMITTED: 21May62

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: OC

NO REF SOV: 006

OTHER: 003

Card 2/2

ACCESSION NR: AT4033990

S/0000/63/000/000/0081/0086

AUTHOR: Rodionov, A. N.; Asnovich, E. Z.; Shigorin, D. N.; Andrianov, K. A.

TITLE: Infrared absorption spectra of some metallic silicones

SOURCE: Geterotsepnnyye vyssokomolekulyarnyye soyedineniya (Heterochain macro-molecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 81-86

TOPIC TAGS: polymer, silicone, siloxane, polyorganosiloxane, metallic silicone, aluminum containing silicone, titanium containing silicone, tin containing silicone, silicone spectral analysis, polyphenyl siloxane, polymethyl siloxane, polyethyl siloxane

ABSTRACT: Absorption spectra of polymethyl-, polyethyl- or polyphenyl siloxanes containing Al, Ti or Sn in various ratios to Si were analyzed for the range 400-1100 cm^{-1} . Bands corresponding to Si-O valence fluctuation in the Si-O-Sn group, were identified at 900-980 cm^{-1} , those for Sn-O at 530-580 cm^{-1} . Band intensities in these spectral regions varied for all polymers in relation to the metal/Si ratio, indicating preservation of absorption frequencies of the Si-O-metal group during monomer to polymer conversion. Location of absorption bands for such group varied little from one metal to another. Orig. art. has: 3 graphs, 2 tables,

Card: 1/2

ACCESSION NR: AT4033990

ASSOCIATION: Fiziko-khimicheskiy Institut im. L. Ya. Karpova (Institute of Physical Chemistry); Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Metalloorganic Compounds AN SSSR)

SUBMITTED: 06Jul62

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: OC

NO REF SOV: 004

OTHER: 003

Card 2/2

S/064/63/000/001/001/007
B101/B186

AUTHORS: Andrianov, K. A., Petrashko, A. I., Asnovich, E. Z.

TITLE: Polymers with inorganic molecular chains

PERIODICAL: Khimicheskaya promyshlennost', no. 1, 1963, 7 - 18

TEXT: This is a review of publications on the synthesis of polyorgano-silicon compound, polyorganoaluminosilicon, polyorganotitanosilicon, polyorganostannosilicon, polyorganoferrosilicon compounds, and phosphorus-containing organosilicon compounds. It covers the period 1948 - 1962 but mainly includes Soviet publications issued in 1961 - 1962. The following problems were mentioned as being important: Production of films and fibers from organosilicon compounds, development of the synthesis of block and graft copolymers of organosilicon compounds, and studies on the possibility of producing organosilicon polymers with regular structures. There are 58 references.

Card 1/1

S/064/63/000/001/002/007
B101/B186

AUTHORS: Turetskaya, R. A., Golubtsov, S. A., Andrianov, K. A.,
Ts'vanger, T. A., Prigozhin, B. Yu.

TITLE: Direct synthesis of ethyl chlorosilanes

PERIODICAL: Khimicheskaya promyshlennost', no. 1, 1963, 18 - 20

TEXT: A method of directly synthesizing ethyl chlorosilanes in a fluidized bed at 360 - 380°C, wherein ethyl chloride is caused to react with a copper-silicon alloy was described by these authors in a series of previous studies (DAN SSSR, 108, 465 (1956); ZhPKh, 35, 1496 (1962); Izv. AN SSSR, OKhN, no. 10, 1788 (1962); ibid. no. 1, 87 (1963)). For comparison, data of lab tests and experiments in a pilot plant with a reaction vessel (of 300 mm diameter and a charge capacity of 250 kg alloy) are given in the present paper. The above data were found to be consistent except for the ethyl chlorosilane yield per hr and kg of contact mass, this being 270 - 700 g in lab tests and 60 - 100 g in the pilot plant. The difference is due to the longer contact time (approximately 20 sec) in the pilot plant. The percentage of the resulting mixture of ethyl chlorosilanes is given in the following sequence: head fraction;
Card 1/3

Direct synthesis of ethyl ...

S/064/63/000/001/002/007
B101/B186

$C_2H_5SiHCl_2$; $C_2H_5SiCl_3$; $(C_2H_5)_2SiHCl$; $(C_2H_5)_2SiCl_2$, and residue. The data of lab tests in method A are the following, contact mass of Cu-Si alloy containing 20 % Si: 0, 27, 20, 7, 37, 9; method B, addition of 27 - 28 % by volume of H_2 during the experiment: 3, 41, 16, 11, 18, 10; method C, addition of 20 - 23.5 % by volume of HCl during the experiment: 11, 49, 16, 4, 16, 6; method D, addition of alloy during the experiment: 2, 51, 18, 5, 16, 8, and method E contact mass Cu-Si alloy containing 10 % Si an promoted by 0.003 % Sb: 0, 14, 13, 9, 56, 8. For the pilot plant experiments, these data are 3, 22, 37, 0, 30, 8 for method A, 11, 42, 27, 0.13, 7 for method B, 3, 46, 27, 0, 17, 7 for method C, 3, 36, 30, 0, 20, 11 for method D, and 4, 20, 28, 0, 38, 10 for method E. The alloy promoted by Sb showed an increase in selectivity and in diethyl dichlorosilane yield, whereas the ethyl chloride consumption was 17 % lower. An HCl addition during the experiment inhibited considerably the formation of ethylene and ethane by dehydrochlorination of ethyl chloride. The synthesis of polyethyl siloxanes from ethyl chlorosilanes is compared with that from ethyl ethoxysilanes. In the first case, 3.2 t and in the second case 10.0 t of raw material is required per ton of liquid. The output of the apparatus per unit volume, calculated for $(C_2H_5)_2SiO$ is Card 2/3

Direct synthesis of ethyl ...

S/064/63/000/001/002/007
B101/B186

70 g/hr·l in the first case and 2.4 g/hr·l in the second case. Further improvements are possible by increasing the yield of diethyl dichlorosilane and by complete inhibition of the formation of dehydrochlorination products. There are 2 figures and 4 tables.

Card 3/3

ANDRIANOV, K.A.; KHANANASHVILI, L.M.; TIKHONOV, V.S.;
KHAN'-SHU-YUY [Han Shu-yü]; KHAN'-EN'-TSZE [Han En-tsê]

Polyorganoborosiloxanes. Plast.massy no.1:21-25 '63. (MIRA 16:2)
(Boron organic compounds)
(Polymers) (Siloxanes)

S/062/63/000/001/011/025
B101/B186

AUTHORS: Andrianov, K. A., and Severnyy, V. V.

TITLE: Telomerization of dimethyl cyclosiloxanes. Communication 4.
Reactions with silicon tetrachloride

PERIODICAL: Akademiya nauk SSSR, Izvestiya. Otdeleniye khimicheskikh nauk,
no. 1, 1963, 82 - 86

TEXT: The reaction of dimethyl cyclosiloxanes with SiCl_4 was studied to determine its applicability for the synthesis of tetrafunctional telomers, and to obtain missing data. The reaction of equimolecular amounts of hexamethyl cyclotrisiloxane with SiCl_4 in a glass ampoule at 250°C confirmed the occurrence of telomerization according to $n[(\text{CH}_3)_2\text{SiO}]_3 + \text{SiCl}_4 \rightarrow \text{Cl}_3\text{Si} - [\text{OSi}(\text{CH}_3)_2]_{3n}\text{Cl}$. The reaction product contained 71.5% of the compound with $n = 1$ and 13.5% with $n = 2$. A much more complicated mixture formed in a steel autoclave under the same conditions from octamethyl cyclotetrasiloxane and SiCl_4 by the catalytic action of FeCl_3 traces. Compounds of the struc-
Card 1/3

Telomerization of dimethyl ...

S/062/63/000/001/011/025
B101/B186

tures $\text{ClSi}(\text{CH}_3)_2\text{--}[\text{OSi}(\text{CH}_3)_2]_n\text{Cl}$ (1); $\text{Cl}_3\text{Si--}[\text{OSi}(\text{CH}_3)_2]_n\text{Cl}$ (2), and $\text{Cl}_3\text{Si--}[\text{OSi}(\text{CH}_3)_2]_n\text{--OSiCl}_3$ (3) were formed. At the molar ratio SiCl_4 : octamethyl cyclotetrasiloxane 4:1, the yield of substances with high chlorine content, such as $\text{Cl}_3\text{Si--}[\text{OSi}(\text{CH}_3)_2]_n\text{--OSiCl}_2\text{--OSiCl}_3$, increased. At the ratio 1:2, the yield of substances boiling above $250^\circ\text{C}/4\text{ mm Hg}$ rose to 38.7%. Contrary to S. Maeda, E. Nojimoto (Jap. patent 3860 (1957), Chem. Abstrs 52, 5880 (1958)), no formation of dimethyl dichlorosilane was found. The catalytic action of FeCl_3 is explained by binding of the Fe atom to an O atom of the siloxane chain. The resulting active complex >Fe--O--Si< decomposes under the action of a compound containing Si-Cl bonds; FeCl_3 is set free again, and an Si-O-Si bond is formed:

$$\begin{array}{c} \text{Cl} \diagup \text{Fe--O--Si} \diagdown \\ \text{Cl} \diagdown \text{Cl--Si--Cl} \diagup \\ \text{Cl} \diagdown \text{Cl} \diagup \end{array}$$

The data for the newly

synthesized compounds are given in the order b.p. (mm Hg), d_4^{20} , and n_D^{20} : oligomers of formula (2), $n = 3$: 65(4), 1.1475, 1.4079; $n = 4$: 91(4), 1.1043, 1.4081; $n = 5$: 112(4), 1.0968, 1.4092; $n = 6$: 132(4), 1.0870, Card 2/3

Telomerization of dimethyl ...

S/062/63/000/001/011/025
B101/B186

1.4108; oligomers of formula (3), $n = 3$: 86 (3), 1.2207, 1.4112; $n = 7$:
189(3), 1.1256, 1.4118; $n = 8$: 205(3), 1.1165, 1.4123; $n = 16$: 215(0.01),
- , 1.4135; $n = 17$: 226-230(0.01), - , 1.4137. There are 4 tables.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk
SSSR (Institute of Elemental Organic Compounds of the Academy
of Sciences USSR)

SUBMITTED: April 16, 1962

Card 3/3

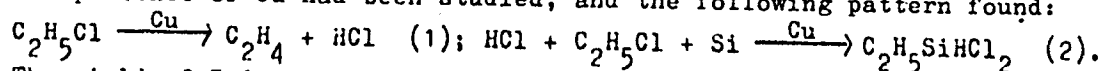
S/062/63/000/001/012/025
B101/B186

AUTHORS: Golubtsov, S. A., Turetskaya, R. A., Andrianov, K. A., and Vabel', Ya. I. (Deceased)

TITLE: Formation of alkyl (aryl) chloro silanes by direct reaction of an alkyl (aryl) chloride with silicon. Communication 3. Direct synthesis of ethyl dichloro silane

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 1, 1963, 87 - 90

TEXT: In a previous paper (Izv. AN SSSR, Otd. khim. n. 1962, 1788) the synthesis of ethyl dichloro silane (I) by reaction of ethyl chloride with Si in the presence of Cu had been studied, and the following pattern found:



The yield of I dropped from initial ~75% after 30 min to a constant level of 15-25% due to the decreasing rate of reaction (1). The objective of the present study was an increase in the yield of I by adding Cu-Si alloy during the reaction. The synthesis was carried out in a fluidized bed of the Cu-Si
Card 1/2

S/062/63/000/002/011/020
B144/B186

AUTHORS: Andrianov, K. A., Severnyy, V. V., and Izmaylov, B. A.

TITLE: Telomerization of dimethyl cyclosiloxanes. Communication 5.
Reactions with trifunctional compounds

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh
nauk, no. 2, 1963, 282 - 290

TEXT: Reacting hexamethyl cyclotrisiloxane (I) with organotrichloro silanes at 250°C led to the formation of telomers of the formula $RSi(Cl)_2-[OSi(CH_3)_2]_nCl$ in which the degree of telomerization depended on the organic radical R. The activity of $RSiCl_3$ decreased in the order $R = CH_3, C_2H_5, CH_2=CH, C_6H_5$. When R was CH_3 or C_2H_5 , a 1:2 excess of I effected a reduction of the yield in the telomer with $n = 1$, a slight increase of the telomers with $n = 2$ and $n = 3$, and a sharp increase of the higher telomers. This effect was absent, when the reaction with CH_3SiCl_3 was brought about in two stages with separation of 1,1,7-trichloro-heptamethyl tetrasiloxane. This is attributed to the dependence of the $RSiCl_3$ Card 1/3

Telomerization of dimethyl cyclosiloxanes... 3/062/01/000/002/011/020
B144/B186

activity on the number of Cl atoms bound to one Si atom. The boiling points, d_4^{20} , n_D^{20} , molecular weights and compositions are given for the 11 new tri-functional telomers obtained. In the presence of $FeCl_2$, not only tri-functional form but also the difunctional telomers $ClSi(CH_3)_2-[OSi(CH_3)_2]_nCl$. For $R = CH_3$ or C_2H_5 , mixtures of tri- and difunctional telomers with equal n formed. With $R = C_2H_5$ or C_6H_5 , the relation $n \geq m$ was found to depend on the type of the initial dimethyl cyclosiloxane $[(CH_3)_2SiO]_m$. The physical properties of the new C_6H_5 homologues with $n = 4, 5, 7, 8, 16, 20$ and C_2H_5 homologues with $n = 4, 5, 7$ are given. In the presence of $FeCl_2$ the percentage of dimethyl cyclosiloxane conversion decreased in the same order as indicated that above for the telomerization. In the reaction with vinyl and phenyl compounds, I proved more active than octamethyl cyclotetrasiloxane. There are 8 tables.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

Card 2/3

Telomerization of dimethyl cyclosiloxanes...

S/062/63/000/002/011/020
B144/B186

SUBMITTED: May 16, 1962

Card 3/3

S/062/65/000/002/012/020
B144/8106

AUTHORS: Andrianov, K. A., and Rumba, G. Ya.

TITLE: Hydrolytic stability of phenyl-methyl cyclosilanes and α,ω -bis-(trimethyl-silyl-amino)-dimethyl silanes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 12, 1965, 220 - 224

TEXT: The effect of phenyl groups on the hydrolytic stability of polymethyl cyclosilanes was studied in the following compounds synthesized for the first time b, aminolysis: triphenyl-trimethyl cyclotrisilane (I), phenyl-pentamethyl cyclotrisilane (II), and diphenyl-tetramethyl cyclotrisilane (III), and also in tri-R-phenyl-hexamethyl cyclotrisilane (IV). The hydrolyzing agents were water, 0.5 N H_2SO_4 , and 0.5 N KOH. Toluene, 96% ethanol and acetone were used as solvents. IV hydrolyzed quickly in ethanol-water and acetone-water mixtures, but was stable in toluene-water- H_2SO_4 . Hydrolysis was noticeably retarded in ethanol-KOH. Using water mixed with toluene, I was completely hydrolyzed in 22 hrs as compared to 36 hrs for hexamethyl cyclotrisilane. Adding H_2SO_4 addition accelerated.

Card 1/2

Hydrolytic stability of...

9/06/64/000/002/012/020
B144/B186

the hydrolysis of I in toluene, but not in ethanol. This may be explained by the lower solubility of I in the presence of H_2SO_4 . Adding KOH to I had a strong retarding effect in toluene, but proved ineffective in ethanol. The highest hydrolytic stability was observed in α,α -bis-(trimethyl-silyl-amino)-dimethyl silanone. I and IV were more readily hydrolyzed than hexamethyl cyclotrisilanes and octamethyl cyclotetrasilanes. Thus, the expected stabilizing effect of phenyl groups on the hydrolysis of silanes could not be verified in the compounds tested. This holds for both C_6H_5-Si bonds and C_6H_5-N bonds. There are 4 figures, and 1 table.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: May 16, 1962

Card 2/2

ACCESSION NR: AT4017408

S/0000/63/000/000/0044/0047

AUTHOR: Ivanov, N. V.; Rogovin, Z. A.; Andrianov, K. A.

TITLE: Synthesis of new cellulose derivatives and other polysaccharides. XXXIII. Synthesis of silicon-organic derivatives of cellulose using organosiloxanes

SOURCE: Tsellyuloza i yeye proizvodnyye, sbornik statey (Cellulose and its derivatives). Moscow, 1963, 44-47

TOPIC TAGS: cellulose, polysaccharide, silicon, silico-organic compound, siloxane, organosiloxane, hydrolysis, hydrolytic stability

ABSTRACT: The inadequate hydrolytic stability of many silico-organic derivatives of cellulose induced the authors to try to eliminate this deficiency by lengthening the silico-organic chain introduced into the derivative. By heating cellulose at 100-105C for 5 hours with α -chloro - ω - trimethylsiloxydimethylsiloxanes in pyridine, they obtained 5 derivatives with a Si content of 12.3, 20.6, 24.4, 24.3 and 23.1% and $\bar{Y} = 105, 52, 44, 30$ and 20, respectively; their hydrolytic stability was then tested by heating in boiling water for 1 to 16 hours. The composition of the compounds is given, a theoretical explanation of their hydrolytic properties is suggested, and the conclusion is drawn that the hydrolytic stability of the Si-O-C bond increases as the length of the radical chain increases.

Card 1/2

ACCESSION NR: AT4017408

Orig. art. has: 2 tables, 1 graph, and 2 structural formulas.

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

SUBMITTED: 16Apr62

DATE ACQ: 06Jan64

ENCL: 00

SUB CODE: CH

NO REF SOV: 003

OTHER: 003

Card 2/2

S/062/63/060/002/013/020
B144/B186

AUTHORS: Andrianov, K. A., Volkova, Lora M., and Tartakovskaya, L. M.

TITLE: Synthesis of dimethyl cyclosiloxanes containing functional groups in the ring

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 2, 1963, 294 - 298

TEXT: Dimethyl cyclosiloxanes with a functional group at the Si atom were synthesized by quantitative decomposition of dibasic sodium salts of α,ω -dioxy-methyl siloxanes with methyl trichlorosilane (I) or methyl-butoxy-dichlorosilane (II). The dimethyl cyclosiloxanes obtained differed in the numbers of Si and O atoms in their rings and were separated by fractionation. Reacting 1,5-disodium-oxy-hexamethyl trisiloxane with I yielded heptamethyl chloro-cyclotetrasiloxane (b.p. 85.5 - 86.5°C, yield 15%), pentamethyl-chloro-cyclotrisiloxane (b.p. 47 - 50°C, d_4^{20} 1.0265, n_D^{20} 1.4050, yield 2.6%), and nonamethyl-chloro-cyclopentasiloxane (III) (b.p. 129 - 132°C, d_4^{20} 1.0410, n_D^{20} 1.4083, yield 7.8%). Reacting it with II yielded heptamethyl-butoxy-cyclotetrasiloxane (b.p. 94 - 96°C, yield 13.9%), Card 1/2

Synthesis of dimethyl...

S/062/63/000/002/013/020 ..
B144/B186

pentamethyl-butoxy-cyclotrisiloxane (b.p. 67 - 71°C, d_4^{20} 0.9653, n_D^{20} 1.4044, yield 2.1%), nonamethyl-butoxy-cyclopentasiloxane (b.p. 134 - 137°C, d_4^{20} 0.9797, n_D^{20} 1.4110, yield 4.8%), and undecamethyl-butoxy-cyclohexasiloxane (b.p. 200.5 - 203.5°C, d_4^{20} 0.9857, n_D^{20} 1.4135, yield 5.4%). All these compounds dissolved readily in benzene, toluene, acetone and ethyl ether. Their structure was derived from the IR spectra. Substituting NH_2 for the Cl group in III gave nonamethyl-amino-cyclopentasiloxane (b.p. 134 - 137°C, d_4^{20} 1.0160, n_D^{20} 1.4115, yield 32.2%). There are 1 figure and 1 table.

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova
(Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: May 21, 1962

Card 2/2

L 10595-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-l/Pr-l RM/WW
ACCESSION NR: AP3000943 S/0064/63/000/003/0011/0018 65

AUTHOR: Turetskaya, R. A.; Golubtsov, S. A.; Trofimova, I. V.; Andrianov, K. A.

TITLE: The influence of some kinetic and hydrodynamic conditions on the direct synthesis of ethylchlorosilanes

SOURCE: Khimicheskaya promyshlennost', no. 3, 1963, 11-18

TOPIC TAGS: Cu-Si alloy, kinetic conditions, hydrodynamic conditions, ethyl-chlorosilane

ABSTRACT: The optimum particle size of Cu-Si alloy (75-250 microns) for the direct synthesis of ethylchlorosilanes, and the critical rate of fluidizing the alloy in the stream of ethyl chloride in reactors of 20-100 mm diameter, were determined. Investigation of reagent contact time, in intervals from 0.3-6.6 sec., on the course of reaction showed composition of reaction products was practically independent of contact time. Optimum synthesis temperature was 360-380C (300-390 degrees range investigated). Change in properties of catalyst and its effect on reaction with ethyl chloride was investigated. Orig. art. has 16 figures.

ASSOCIATION: none

Card 1/2/

ANDRIANOV, K.A.; KAZAKOVA, A.A.

Synthesis of polymers with inorganic chains of molecules.
Polyorganosiloxyphosphoralumoxanes. Plast. massy no.3:24-26
'63. (MIRA 16:4)

(Silicon organic compounds)
(Phosphorus organic compounds)
(Aluminum organic compounds)
(Polymerization)

TURETSKAYA, R. A.; GOLUBTSOV, S. A.; TROFIKOVA, I. V.; ANDRIANOV, K. A.

Effect of some kinetic and hydrodynamic conditions on the
direct synthesis of ethylchlorosilanes. Khim. prom. no.3:
171-178 Mr '63. (MIRA 16:4)

(Silane)

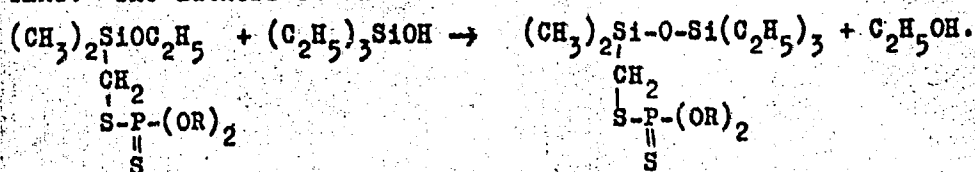
S/062/63/000/003/008/018
B101/B186

AUTHORS: Andrianov, K. A., Kuznetsova, I. K., and Pakhomova, I.

TITLE: Reaction of methyl-ethoxy-silyl-methyl esters of dialkyl-dithio-phosphoric acids with triethyl-hydroxy-silane

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1963, 500 - 502

TEXT: The authors studied the reaction



In the case of R = C₂H₅, after heating at 140 - 150°C the dimethyl-ethoxy-silyl-methyl ester of the diethyl-dithio-phosphoric acid was obtained, yield 50 %, b.p. 153°C/2 mm Hg, n_D²⁰ = 1.4818, d₄²⁰ = 1.029. With Card 1/2

Reaction of methyl-ethoxy- ...

S/062/63/000/003/008/018
B101/B186

R = C_4H_9 the corresponding ester of the dibutyl-dithio-phosphoric acid was obtained in 40 % yield, b.p. $150^{\circ}C/1.10$ mm Hg, $n_D^{20} = 1.4769$, $d_4^{20} = 0.9947$. The structure of these compounds was identified by their synthesis from 1-triethyl-3-chloro-methyl-dimethyl-disiloxane and potassium diethyl-dithio-phosphate.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: May 29, 1962

Card 2/2

L 17063-63 EWP(j)/EPF(c)/EWT(m)/BDS S/062/63/000/004/009/022
 ASD Pc-4/Pr-4 RM/WW
 AUTHOR: Andrianov, K. A., Klimova, M. I., Khananashvili, L. M., and Sipyagina, M. A. 66
 TITLE: On the condensation of α, ω -dihydroxymethylsiloxanes with 1, 3-diaceto-1, 3-dimethyl-1, 3-diphenyldisiloxane 65
 PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 4, 1963, 651-654
 TEXT: The synthesis of linear polymers by the reaction of polycondensation of oligomers of the dimethylsiloxane type with the hydroxyl groups at the end of chains with oligomers containing the acetate groups, for example, 1, 3-diacetoxy-1, 3-dimethyl-1, 3-diphenyldisiloxane was of interest to the authors. The reaction of alpha, omega-dichloromethylphenylsiloxanes with acetic anhydride was studied and several alpha, omega-diacetoxymethylphenylsiloxanes were synthesized. The condensation between alpha, omega-dihydroxyoctamethyltetrasiloxane and 1,3-diacetoxy-1, 3-diphenyldisiloxane was conducted. The polymer formed has a higher vitrification temperature (-550) than the polymer based on

Card 1/2

L F7063-63

S/062/63/000/004/009/022

On the condensation of

heptamethylphenylcyclotetrasiloxane (-70°). There are 2 figures. The 2 English-language references read as follows: W. H. Davdt, J. F. Hyde, J. Amer. Chem. Soc., 74, 386 (1952); P. George, L. Sommer, F. Whitmore, J. Amer. Chem. Soc., 75, 1585 (1953).

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova
(Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: June 15, 1962

Card 2/2

ACCESSION NR: AP3000133

S/0062/63/000/005/0948/0950

AUTHOR: Andrianov, K. A.; Khayduk, Ionel; Khananashvili, L. M.; Lotarev, M. B.

TITLE: Synthesis of vinyl derivatives of cyclosilazanes

SOURCE: AN SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5, 1963, 948-950

TOPIC TAGS: silazanes, silanes, vinyl derivatives, coammonolysis

ABSTRACT: Trimethyltrivinylcyclotrisilazane and tetramethyltetravinylcyclotetrasilazane were obtained by reacting methylvinylchlorosilane with gaseous ammonia in benzene. Coammonolysis of methylvinylchlorosilane with dimethyldichlorosilane yielded two six-membered cyclic derivatives and one eight-membered cyclic derivative. Coammonolysis of methylvinylchlorosilane with diethyldichlorosilane resulted in the formation of six-membered cyclic derivatives only. The seven synthesized compounds were identified by means of elemental analysis and through determination of molecular weights, molar refractive indices and infrared spectra. Physical constants of the seven compounds are summarized in a table. Orig. art. has: 5 formulas and 1 table.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

Card 3/6

ACCESSION NR: AP3000134

S/0062/63/000/005/0950/0951

AUTHOR: Andrianov, K. A.; Astakhin, V. V.; Losev, V. B.

TITLE: The reaction of organocyclosilazanes with phenols

SOURCE: AN SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5, 1963, 950-951

TOPIC TAGS: organocyclosilazanes, phenols hexamethylcyclotrisilazane, cresols, dialkyldiaryloxysilanes, transesterification of dimethyldiethoxysilane

ABSTRACT: The reaction of hexamethylcyclotrisilazane with phenol and the three isomeric cresols led to ring opening, evolution of ammonia, and formation of the corresponding dialkyldiaryloxysilanes in yields of 63-75%. These exceed the yields of the same compounds obtained in the transesterification of dimethyldiethoxysilane with phenols in the presence of metallic sodium. Orig. art. has: 1 equation and 1 table.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences SSSR) Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina (All-Union Electrical Engineering Institute)

~~Copy 1/2~~

ACCESSION NR: AP3001577

8/0191/63/000/006/0021/0024

AUTHOR: Andrianov, K. A.; Chernyakova, A. M.

TITLE: Heat-stable STK-41 glass fiber laminate

SOURCE: Plasticheskiye massy, no. 6, 1963, 21-24

TOPIC TAGS: STK-41 glass fiber laminate, dielectric properties, electrically-insulating materials, organo-silicon resin K-41

ABSTRACT: The thermally-reactive organo-silicon resin K-41 (made by the condensation of hydrolysis products of equal molecular amounts of methyl- and phenyl-chlorosilanes; molecular weight 2030-2500) has high dielectric properties. Heat-stable STK-41 glass fiber laminate impregnated with K-41 also has high dielectric constants. The grade of glass laminate used affects dielectric properties: use of cloth containing less than 0.5% alkali sharply increases moisture stability of the textolite, thus working under conditions of tropical moisture is possible. K-41 can be used in the form of a lacquer (toluene solution) to impregnate various fillers, to prepare electrically-insulating materials. "The authors express thanks to E. M. Kuptsov for conducting chemical analysis on K-41 lacquer, and also to N. P. Orlov, N. D. Liventsov and Yu. V. Goncharenko for conducting electrophysical tests on K-41 lacquer and STK-41 glass fiber laminate." Orig. art. has: 5 figures, Card 1/2

ACCESSION NR: AP3001577

1 table, and 1 formula.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 01Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 007

OTHER: 001

Card 2/2

L 13365-63

EWI(j)/BDS/EWT(m)/ES(s)-2 ASD/ESD-3/SSD Pc-4/

Pt-4 RM

ACCESSION NR: AP3003507

8/0191/83/000/007/0028/0031

AUTHORS: Andrianov, K. A; Krestov, N. I.; Rekat, V. B; Kudryavtsev, V. V.; Kvashnin, V. S. 71

TITLE: The production of dielectric laminates with non-alcoholic phenolformaldehyde resins.

SOURCE: Plasticheskiye massy, no. 7, 1963, 28-31

TOPIC TAGS: laminate, phenolformaldehyde, resin, paraformol, cresol, polyoxymethylene.

ABSTRACT: The scope of this study is to produce liquid phenolformaldehyde resins without the use of alcohols which are to be used in the production of laminates. A new method for the preparation of liquid non-alcoholic phenolformaldehyde resins in which a large portion of formaldehyde is replaced by paraformol has been obtained. The ratio of intermediates is taken in such proportions that the water from formaldehyde and from the condensation is used in the formation of the liquid resin. This eliminates many steps from the process such as decantation or distillation, or vacuum drying by which the excess water is removed, the purification step of removing the undesirable by-products. Since there are no losses, the amount of

Card 1/2

L 13365-63

ACCESSION NR: AP3003307

oresol is decreased. The characteristic of the above resin is its rapid change in viscosity upon standing. The production of laminates by a non-alcoholic method has a great economical effect not only by the fact that its material cost is about 16% less than the alcoholic method, but also the absence of alcohol and explosive vapors simplifies the production and increases the production capacity. Other substitutes used in the laboratory preparation of liquid resins was Alpha-polyoxymethylene. Orig. art. has: 2 tables, and 2 figures.

ASSOCIATION: none

SUBMITTED 00

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: MA

NO REF SOV: 000

OTHER: 000

Card

2/2

ANDRIANOV, K.A.; YEMEL'YANOV, V.N.

Synthesis of polyesters and polyester amides having a cycloreticular structure. Izv. AN SSSR. Ser.khim. no.7:1267-1272 J1 '63.

(MIRA 16:9)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

(Pentaerythritol)

(Acids, Fatty)

(Polymers)

KHAYDUK, Ionel; ANDRIANOV, K.A.

Nomenclature of silicon-containing inorganic heterocycles. Izv.
AN SSSR. Ser.khim. no.9:1537-1544 S '63. (MIRA 16:9)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.
(Silicon compounds—Nomenclature)

ANDRIANOV, K.A.; SHAPATIN, A.S.; PONOMAREV, V.V.

Reactions of aluminum alcoholates with esters of inorganic acids.
Izv. AN SSSR. Ser.khim. no.9:1660-1662 S '63. (MIRA 16:9)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.
(Aluminum alcoholates) (Acids, Inorganic)

ANDRIANOV, K.A.; SIPPYAGINA, M.A.; FRIDSHTEYN, T.I.

Reactions of tetrakis (methylphenylsiloxanohydroxy)titaniums and silanes with trimethyl- and triphenylchlorosilanes. Izv. AN SSSR. Ser.khim. no.9:1672-1675 S '63. (MIRA 16:9)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.
(Titanium organic compounds) (Silane)

ANDRIANOV, K.A.; KHAYDUK, Ionel; KHANANASHVILI, L.M.

New eight-membered cyclosilazoxanes. Izv. AN SSSR. Ser.khim.
no.9:1701-1702 S '63. (MIRA 16:9)

1. Institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova.
(Silicon organic compounds)

LOBUSEVICH, N.P.; LAYNER, D.I.; TROFIMOVA, I.V.; MALYSHEVA, L.A.;
ANDRIANOV, K.A.; GOLUBTSOV, S.A.

Reactions of alkyl (aryl) chlorosilane formation by the direct
interaction between alkyl (aryl) chlorides and silicon. Report No.5:
Phase composition of silicon-copper contact masses in reactions with
methyl chloride. Izv. AN SSSR Ser.khim. no.10:1757-1766 0 '63.

(MIRA 17:3)

1. Nauchno-issledovatel'skiy i proyektnyy institut splavov i
obrabotki tsvetnykh metallav.

ANDRIANOV, K.A.; VASIL'YEVA, T.V.; LI I-MIN [Li I-ming]

Interaction of α, ω -dichlorodimethylsiloxanes with ethylamine.
Izv. AN SSSR Ser.khim. no.10:1847-1850 O '63. (MIRA 17:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.
Lomonosova.

ANDRIANOV, K.A.; LAVYGIN, I.A.

On the reaction of 8-hydroxyquinoline-tributoxytitanium with
 α, ω -dihydroxypolydimethylsiloxanes. Izv. AN SSSR Ser.khim.
no.10:1857-1859 0 '63. (MIRA 17:3)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

VOLKOVA, Lora M.; ANDRIANOV, K.A.; OBUSHEVA, M.S.

Bicyclic dimethylsiloxane oligomers. Izv. AN SSSR. Ser. khim.
no.11:1986-1989 N '63. (MIRA 17:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
M.V. Lomonosova.

ZHINKIN, D.Ya.; SEMENOVA, Ye.A.; ANDRIANOV, K.A.

Reactions of hydrolysis of alkyl hydrocyclosilazanes and
dialkylcyclosilazanes. Izv. AN SSSR. Ser. khim. no.11:1989-
1992 N '63. (MIRA 17:1)

POPELEVA, G.S.; ANDRIANOV, K.A.; GOLUBTSOV, S.A.; POPKOV, K.K.

Thermal addition of hydrochlorosilanes to alkenylchlorosilanes.
Izv. AN SSSR. Ser. khim. no.11:2041-2042 N '63. (MIRA 17:1)

ANDRIANOV, K.A.; VOLKOVA, L.M.; TALANOV, V.N.

Ammonolysis reaction of α, ω -dichlorodimethylsiloxane. Izv.
AN SSSR. Ser. khim. no.11:2045-2047 N '63. (MIRA 17:1)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

ZHINKIN, D.Ya.; SEMENOVA, Ye.A.; SOBOLEVSKIY, M.V.; ANDRIANOV, K.A.

Transformations of alkyl silazanes at high temperatures. Plast.massy
no.12:16-17 '63. (MIRA 17:2)

ANDRIANOV, K.A.; ASTAKHIN, V.V.

Reaction of organocyclosilazanes with saturated monobasic acids. Izv. AN SSSR. Ser. khim. no.12:2206 D '63.

(MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Vsesoyuznyy elektrotekhnicheskiy institut im. V.I. Lenina.

L 16185-65 EWT(m)/EPF(z)/EWP(j)/T Pc-4/Pr-4/Pd- RFL JW/RM
ACCESSION NR: AP4045838 S/0062/63/000/012/2227/2230

AUTHOR: Andrianov, K. A.; Vasil'yeva, T. V.; Minayeva, A. A. 6

TITLE: The reaction of dimethyldichlorosilane and methylphosphinic acid
dichloroanhydride with ethylamine 7

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 12, 1963, 2227-2230

TOPIC TAGS: dimethyldichlorosilane, methylphosphinic acid dichloroanhydride,
ethylamine, cyclic reaction compound, linear reaction compound, molar reagent
ratio, cycle stability

ABSTRACT: The direction of the reaction of dimethyldichlorosilane with ethylamine and the formation of monomers or cyclic compounds was found to depend upon the ratio of the two reagents: at the 1:1 molar ratio, the cyclic compound prevailed, 1,3,5-hexamethyl-2,4,6-triethylcyclotrisilazane (39% yield); at the 1:3.5 ratio a linear compound, bis-(ethylaminodimethylsilyl)ethylamine (42% yield). Their properties are tabulated, and the NMR spectrum figured and discussed.

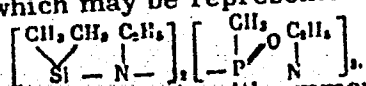
Card 1/2

L 16185-65

ACCESSION NR: AP4045838

2

Stability against hydrolysis was more pronounced in the cyclic compound. Reaction of the 3 title compounds yielded a cyclic low-melting crystalline compound soluble in nitrobenzene which may be represented by the following formula



Reaction of the first 2 title compounds with ammonia gave no mixed rings. Results of amination are briefly reported. Orig. art. has: 1 table, 3 figures and 3 formulas.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 28Jun63

ENCL: 00

SUB CODE: GC, OC

NO REF SOV: 001

OTHER: 001

Card 2/2

ANDRIANOV, K.A.; ASNOVICH, E.Z.

Polynaphthencalumophenylsiloxanes. Trudy VFI 71:7-12 '63.
(MIRA 17:8)

ACCESSION NR: AT4001515

S/3032/63/000/071/0013/0026

AUTHORS: Andrianov, K. A.; Skipetrov, V. V.; Kalyakina, A. N.

TITLE: Investigation of Incombustible liquids for flooding transformers

SOURCE: Moscow. Vses. elektrotekhn. Institut. Trudy*, no. 71, 1963, 13-26

TOPIC TAGS: transformer, transformer oil, transformer fluid, noncombustible transformer fluid, nonflammable transformer fluid, low freezing point transformer fluid, SOVTOL 2, pentachlorodiphenyl, incombustible, incombustible fluid, noncombustible, noncombustible fluid, power transformer, power transformer oil, synthetic oil, diphenyl.pentachloro-, benzene.trichloro-, trichlorobenzene

ABSTRACT: Studies were carried out on the nonflammable transformer fluids, SOVTOL 2 and SOVTOL 10. SOVTOL 2, containing 64% pentachlorodiphenyl and 36% trichlorobenzene, has a viscosity similar to that of transformer oil and a freezing point of -42C which makes it suitable for use at low temperatures. SOVTOL 10 (10% trichlorobenzene, 90% pentachlorodiphenyl), with a freezing point of -7C, is suitable in cases in which the surrounding temperature remains above +10C and, because of its high viscosity, is less sensitive to contamination but still capable of heat exchange by convection. Table 1 of the Enclosure shows the physical, chemical, and dielectric properties of these 2 transformer fluids

Card 1/6 2

ACCESSION NR: AT4001515

compared with similar ones produced in Western Europe. The authors recommend that the trichlorobenzene be distilled under atmospheric pressure (210-220C boiling range) in the presence of glynykil and be protected from light. Tin tetraphenyl (0.1% by weight) as a stabilizer for SOVTOL 10 did not reduce this product's sensitivity to UV radiation, as seen by increases occurring in tg delta and the acid number. The stabilizer had no effect on the bursting strength of cable insulating paper kept in SOVTOL 10 for periods up to 60 days nor on the number of double twists in the fibers. Table 2 of the Enclosure shows the changes in the viscosity of SOVTOL 10 when heated to 90 and 120C for 90 and 120 days in tubes and sealed ampules. A study of the effect of various plastic-coated materials on SOVTOL 10 showed that, except for AF-17 and FL-98 resins, none of the materials studied had a deleterious effect on the dielectric properties of the fluid. Table 8 in the original shows the effect of various materials on the tg delta of SOVTOL 10. When SOVTOL 10 was tested in a TNZ transformer (rated voltage 10 kv, output 1000 kva) for 14-895 day periods, there were no appreciable changes in the breakdown voltage, viscosity and acid number of the fluid, but a marked decrease in tg delta.

ASSOCIATION: Vses. elektrotekh. institut (All-Union Institute of Electro-technology)

Card 2/6

ANDRIANOV, K.A.; YERMAKOVA, M.N.

Synthesis and polymerization of bis and tris (trialkylsiloxy)
tin methacrylate. Vysokom.sped. 5 no.2:217-221 P '63. (MIRA 16:2)

1. Institut elementoorganicheskikh sovedineniy AN SSSR.
(Tin organic compounds) (Methacrylic acid)
(Polymerization)

ANDRIANOV, K.A.; MARFENKOVA, G.P.; KHANANASHVILI, L.M.; SHAPATIN, A.S.

Synthesis of organophosphinoxaluminodimethylsiloxane
elastomers. Vysokom. soed. 5 no.10:1552-1557 0 '63.
(MIRA 17:1)

1. Institut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

L 18194-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD Pc-4/Pr-4 RM/WW
 ACCESSION NR: AP3005898 S/0153/63/006/003/0465/0470

AUTHORS: Pavlenko, T. G.; Andrianov, K. A.; L'vov, S. V.; Khananshvil, L. M.;
 Serafimov, L. A.; Kamartitskiy, B. A.

TITLE: Hydrolysis of organochlorsilanes in continuous-motion counterflow spray columns

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 6, no. 3, 1963, 465-470

TOPIC TAGS: methylchlorsilane, dimethylchlorsilane, phenyltrichlorsilane,
 plastics, counterflow spray column, continuous-motion spray column,
 hydrolysis

ABSTRACT: The process and apparatus described were used for the hydrolysis of methyltrichlorsilane and dimethylchlorsilane, and the co-hydrolysis of methyltrichlorsilane and phenyltrichlorsilane. The polymer obtained from methyltrichlorsilane was not inferior to that obtained with the periodic method in mixed-type apparatus: gel time, 12 min; setting time, 20 min; viscosity in toluene solution, 10.5 sec; dry residue, 24.5%. A plastic prepared from this polymer had good physico-mechanical properties, in excess of technical requirements except for bending strength. Orig. art. has: 2 figures, 5 tables.

Card 1/8 ASSN: Moscow Institute of Fine Chemical Technology.

L 11062-63 EPF(c)/RWP(j)/RWP(q)/RWT(m)/BDS--AFFTC/ASD--Pr-I/Pe-I--RM/MAY/
 ACCESSION NR: AP3001449 WN/JD/JG S/0074/63/032/005/0539/0589

AUTHOR: Andrianov, K. A.; Khayduk, I.; Khananashvili, L. M.

TITLE: Inorganic cyclic silicon compounds and their organic derivatives

SOURCE: Uspekhi khimii, v. 32, no. 5, 1963, 539-589

TOPIC TAGS: heterocyclic, functional silica group reaction, homofunctional condensation reaction, heterofunctional condensation reaction, reaction of siloxane bond rupture, organic radical, separation reaction, the silica atom; mixed cyclic silicon compounds, polycyclic compounds, polymers.

ABSTRACT: This article summarizes the works dedicated to the chemistry of inorganic cyclic silicon compounds including the works of 1962. For the convenience of study, these compounds were broken into homocyclic compounds composed of silica atoms only of the formula - $[R \text{ sub } 2 \text{ Si}] \text{ sub } n$. This group includes cyclotetrasilanes and cyclohexasilanes. Cyclohexasilanes are more stable than cyclotetrasilanes since the stress on the ring of the first is smaller. Heterocyclic compounds have heteroatoms of O, N, S, and Se in place of silica atoms. Mixed cycles are obtained when a portion of the conjugated silica atoms are replaced with P, B, or others. Cycles containing conjugated atoms of O, N, and S are more stable than homogeneous cycles since the latter has lower electronega-

Card 1/43

L 11062-63

ACCESSION NR: AP3001449

1

tivity. Cyclosiloxanes have a general formula $[R \text{ sub } 2 \text{ SiO}] \text{ sub } n$ and contain from 3 to 12 SiO groups per cycle. After the formation of the cycle, the free valences of silica can be replaced with inorganic groups ($R = \text{Cl, Be, OH or } -\text{O sup } (-) \text{)}$, or organic groups ($R = \text{aryl, alkyl}$), or other functional groups. The inorganic cyclosilicates are found in the anionic forms of $\text{Si sub } 3 \text{ O sub } 9 \text{ sup } 6-$, $\text{SiO sub } 12 \text{ sup } 8-$, and $\text{Si sub } 6 \text{ O sub } 18 \text{ sup } 12-$. The organic cyclosilanes containing two organic radicals attached directly to the silica atom can be prepared by the following reactions: functional silica group reaction with substances capable of giving off oxygen (water, alcohols, ketones, ethers, metal oxides, etc.). The most important method in this reaction is the hydrolysis of functional silica groups. Homofunctional condensation reaction is promoted by heating, pressure, and catalytic reaction of acids or bases. Heterofunctional condensation reaction is promoted by heating in the presence of Friedel-Crafts catalyst reaction. The reaction of siloxane bond rupture and the reaction of separation of the organic radical from the silica atom are also discussed. A great number of references are included covering the structure and physical and chemical properties of organocyclosiloxanes. A detailed illustration of the following reactions are also presented: rupture of cycles, formation of oligomers, telomers, regrouping, formation of polymers, electrophilic reagents, co-polymerization of cycles, and chemical transformation in the organic radical. Cyclosiloxanes containing SiN bonds in the cycle are presently found in 2, 3, or 4 SiN groups. Organocyclic silazanes are stable at high

Card 2/43

L 11062-63

ACCESSION NR: AP3001449

temperatures; however, they hydrolyze in water. Cyclosilthianes contain 2, 3, or 4 SiS groups and have 4-, 6-, and 8- group cycles. Cyclosilselanes in its cycles contained silica and selenium. At the present only two products are known, a dimer and a trimer with a cyclic structure. Both compounds are unstable. The mixed cyclic silicon compounds are transitional compounds between organocyclicsiloxanes and other inorganic cycles. The oxygen in the cycle can be partly substituted by N, S, and from cyclosilazoxanes and cyclosilthioxanes. Silica can be partly substituted by B, Al, P, Ti, Ar, and Sb forming mixed organocyclopelmental-siloxanes. All these reactions are illustrated in the original article and their physical and chemical properties explained. Polycyclic compounds of silica are also classified into homo- and hetero- compounds. Thus the cyclic silica structures of inorganic elements present a number of specific properties sharply distinguished from the cyclic organic compounds. The high reactivity of the inorganic cyclic compounds containing silica in relation to nucleophilic and electrophilic reagents is typical for all cyclic compounds. This distinguishes them from the organic carbocyclic compounds and opens a great possibility for their utilization in various syntheses of polymers. Orig. art. has: 0 figures, 0 tables and 0 graphs.

ASSOCIATION: none

Card 3/43

L 10663-63

EPF(c)/EWP(j)/EWT(m)/BDS--ASD--Pr-4/Pc-4--RM/KW/MAY 69
S/079/63/033/004/008/010 68

AUTHOR: Andrianov, K.A., Kurakov, G.A., Khananashvili, L.M.,
Lomonosova, T.A.

TITLE: Reaction of reamination of bis(diethylamino)-
derivative silanes and octamethylcyclotetrasilazane
with aromatic amines ↑

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 4, 1963,
1294-1299

TEXT: The compounds of bis(diethylamino)methylsilane,
bis(diethylamino)ethylsilane, diethylaminophenylaminoethylsilane,
and bis(phenylamino)ethylsilane, of which the first two have not
been described previously in published literature, are synthesized.
These compounds are liquids which evaporate in a vacuum without
decomposing and are easily hydrolyzed in air. They react with
benzidine to form polymers which are solids at room temperature.

Card 1/2

L 10663-63


S/079/63/033/004/008/010 /

Reaction of reamination of...

The properties of these polymers are studied and are given in a table. It is shown that the reamination of bis(diethylamino)-ethylsilane by aniline takes place without the displacement of a hydrogen atom from the silicon to the amino group.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii
imeni M.V. Lomonosova (Moscow Institute of
Fine Chemical Technology imeni M.V. Lomonosov)

SUBMITTED: May 29, 1962

kes / 
Card 2/2

L 13349-63

EWP(j)/EPF(c)/EWT(m)/BDS

ASD

Pc-4/Pr-4

RM/WW

ACCESSION NR: AP3002627

8/0079/63/033/006/2015/2018

AUTHOR: Turetskaya, R. A.; Trofimova, I. V.; Andrianov, K. A.; Golubtsov, B. A.TITLE: The question of the role of the phase structure of silicon-copper contact masses in the direct synthesis of ethylchlorosilanes ¶

SOURCE: Zhurnal obshchey khimii, v. 33, no. 6, 1963, 2015-2018

TOPIC TAGS: phase structure, silicon-copper, synthesis, ethylchlorosilane, Cu sub 3 Si, silane, catalyst, ethyl chloride, dehydrochlorination, ethyldichlorosilane, diethyldichlorosilane

ABSTRACT: According to data obtained as well as literature, the role of the intermetallic Cu sub 3 Si compound, which disintegrates because of Si reacting with ethylchloride and which is regenerated in the process, consists in the formation (silanes) and partial renewal (of the catalyst). The concentration of Cu sub 3 Si does not determine selective activity of catalyst activity in ethyl chloride reaction; product yields are essentially the same whether contact mass is all Cu sub 3 Si, or just a mixture of Cu and Si (pure or with additives) where there is no Cu sub 3 Si, Cu provides the catalytic activity; the generation

Card 1/2

I 13349-63

ACCESSION NR: AP3002627

of ethylene (from ethyl chloride) on contact with Cu-catalyst is almost instantaneous, dropping notably with time. This decrease in catalytic activity upon dehydrochlorination is assumed to determine the selective formation of ethyldichlorosilane (in preference to diethyldichlorosilane) in the direct synthesis process. Orig art. has: 1 figure, 2 tables.

ASSOCIATION: None

SUBMITTED: 26Apr62

DATE ACQ: 20Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 010

OTHER: 001

Card 2/2

L 17156-63

ENP(j)/EPF(c)/ENT(m)/BDS

ASD

Pc-4/Pr-4

RM/WW/MAY

67
66

S/0079/63/033/008/2790/2791

ACCESSION NR: AP3006831

AUTHOR: Andrianov, K. A.; Khayduk, Ionel; Khananashvili, L. M.

TITLE: New inorganic heterocyclic compound 1-trisildiazoxane

SOURCE: Zhurnal obshchey khimii, v. 33, no. 8, 1963, 2790-2791

TOPIC TAGS: heterocyclic compounds, inorganic heterocyclic compounds, trisildiazoxanes, 3,5-diaza-1-oxacyclohexasilane, trisildiazoxane synthesis, synthesis, ammonolysis, dichlorotetramethylsiloxane, dichlorodimethylsilane, 2,4,6-hexamethyl-3,5-diaza-1-oxacyclohexasilane, 2,4,6-hexamethyl-3,5-diaza-1-oxacyclohexasilane property

ABSTRACT: 2,4,6-Hexamethyl-3,5-diaza-1-oxacyclohexasilane (I), the first representative of a new class of inorganic heterocyclic compounds — trisildiazoxanes [sic] — has been synthesized by ammonolysis of dichlorotetramethylsiloxane (II) with dichlorodimethylsilane (III) in liquid ammonia. An equimolar mixture of II and III dissolved in toluene was added dropwise to liquid ammonia. After

Card 1/2

L 17156-63

ACCESSION NR: AP3006831

completion of the reaction excess ammonia and toluene were removed by heating and distillation, respectively. Compound I precipitated from the reaction mixture as needle-shaped colorless crystals which, after recrystallization from petroleum ether, had a melting point of 46—47°C. The yield of I was 28.9%. Other 3,5-diaza-1-oxacyclohexasilane derivatives are being prepared. Orig. art. has: 1 formula.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 15Mar63

DATE ACQ: 30Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 001

OTHER: 001

Card 2/2

L 12709-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD/ESD-3 Pg-4/Pr-4 RM/WW/MAY
 ACCESSION NR: AP3000299 S/0020/63/150/001/0093/0095 69
 67

AUTHOR: Andrianov, K. A. (Corresponding Member, AN SSSR); Khayduk, Ionel;
Khananashvili, L. M.

TITLE: Structure of unsaturated derivatives of cyclotrisilazane

SOURCE: AN SSSR. Doklady, v. 150, no. 1, 1963, 93-95

TOPIC TAGS: silanes, silazanes, coammonolysis, conjugation, ammonolysis

ABSTRACT: Unsaturated derivatives of trisilazane heterocycle were prepared for the first time through ammonolysis of methylvinylchlorosilane or coammonolysis of methylvinylchlorosilane with dimethyldichlorosilane in benzene. Trimethyl-tri-vinylcyclotrisilazane and tetramethyltetravinylcyclotetrasilazane were isolated upon ammonolysis of methylvinylchlorosilane. Coammonolysis of dimethyldichlorosilane with methylvinylchlorosilane yielded pentamethylvinylcyclotrisilazane and tetramethyldivinylcyclotrisilazane. Physical properties of the four compounds are summarized in a table. Elemental analysis and molecular weight determinations confirmed the composition of the synthesized compounds. Infrared and ultraviolet spectra provided additional information about the structure of unsaturated derivatives of cyclosilazane. Author concluded on the basis of ultraviolet spectra that there is no conjugation of the vinyl groups through the inorganic heterocycle Si

Card 1/2

L 12709-63

ACCESSION NR: AP3000299

sub 3 N sub 3 but the conjugation is outside the nucleus and limited to interaction between the silicon atom and the vinyl group. Orig. art. has: 2 figures, 1 formula and 3 tables. 2

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 06Feb63

DATE ACQ: 10Jun63

ENCL: 00

SUB CODE: CH

NO REF SOV: 003

OTHER: 002

Card 2/2

L 17541-63

EMP(j)/EFT(o)/ENT(m)/BDS ASD Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3004424

S/0020/63/151/004/0849/0852

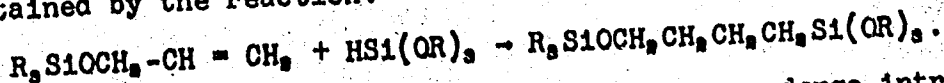
AUTHORS: Andrianov, K. A (Corresponding Member, AN SSSR); Pakho-
mov, V. I.; Lapteva, N. Ye.

TITLE: Intramolecular transesterification reactions of
substituted Gamma-oxypropylalkoxysilane ethers

SOURCE: AN SSSR. Doklady*, v. 151, no. 4, 1963, 849-852.

TOPIC TAGS: esterification, organosilicon compound.

ABSTRACT: Substituted ethers of γ -oxypropylalkoxysilanes were
obtained by the reaction:



Substituted γ -oxypropylalkoxysilane ethers can undergo intra-
molecular esterification to form 5- to 10-membered cyclic compounds.
When γ -trimethylsiloxypropyltributoxysilane was heated under
vacuum, a 32% yield of trimethylbutoxysilane and 1,1-dibutoxy-
1-sila-2-oxycyclopentane was formed. The reaction rate and yield

Cord 1/2

L 17541-63

ACCESSION NR: AP3004424

were increased by adding traces of acid. When other trimethyl-siloxy- γ -propylalkoxysilanes were used, the 5-membered ring compounds usually polymerized at room temperature. Some of the 5-membered cyclic compounds were converted into 10-membered ones on standing at room temperature, while heating caused the reverse reaction to occur. The authors propose reaction reaction mechanisms for intramolecular esterification. Depending upon conditions used to separate the compounds, both intra- and intermolecular esterification occurred in some dimethyl-substituted ethers. Milder conditions favored formation of 5-membered ring compounds. Orig. art. has: 2 tables and 5 formulas.

ASSOCIATION: Nauchno-issledovatel'skiy institut plasticheskikh mass (Scientific-Research Institute for Plastics).

SUBMITTED: 26Mar63

DATE ACQ: 21Aug63

ENCL: 00

SUB CODE: CH

NO REF SOV: 000

OTHER: 000

Card 2/2

L 18660-63

EWP(j)/EPF(c)/EWT(m)/BDS/ES(s)-2

AFFTC/ASD/SSD

Pr-4/

Pc-4/Pt-4 RM/WW/MAY

ACCESSION NR: AP3005439

S/0020/63/151/005/1093/1096

AUTHOR: Andrianov, K. (Corresponding member, AN SSSR)

TITLE: Controlled modification of the properties of macromolecular compounds

SOURCE: AN SSSR. Doklady*, v. 151, no. 5, 1963, 1093-1096

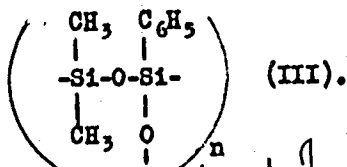
TOPIC TAGS: silicone, organosilicon, organosilicon polymer, organoelemental polymer, polymer property, polymer-property modification, modification, polymer-property controlled modification, element introduction, group introduction, backbone modification, mechanical property, elastic property, adhesive property, adhesion, thermal-oxidative stability, polydimethylsiloxane, polyphenyl(hydroxyphenylisopropylidene)phenoxy)siloxane, polydimethylpolyphenylsiloxane, titanium introduction, phosphorus introduction, aluminum introduction, titanium, phosphorus, aluminum

ABSTRACT: The effects of traces of various elements and groups introduced into polymer backbones on the mechanical, elastic, and adhesive properties and thermal-oxidative stability (TS) of the polymers have been studied to develop a method for controlled modification of the properties of macromolecular compounds. Experiments were conducted with polydimethylsiloxane (I),

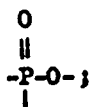
Card 1/4

L 18660-63
ACCESSION NR: AP3005439

polyphenyl(hydroxyphenylisopropylidenephenoxy)siloxane (II), and polydimethyl-
polyphenylsiloxane,



Introduction into I of 0.02% Ti as the -O-Ti-O-Si- group sharply increased the TS and improved the mechanical and elastic properties of the polymer; the TS and elongation of the elastomer were improved by introduction of 0.02% P as the group



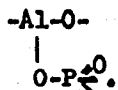
its elastic properties were improved by introduction of 0.01% Al and 0.015% P

Card 2/4

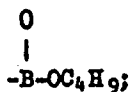
L 18660-63

ACCESSION NR: AP3005439

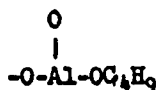
as the group



The adhesive properties and the TS of II were improved by introduction of 0.05% B as the group



introduction of 0.16% Ti as the -O-Ti-O-Si group or 0.12% Al as the group



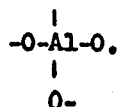
also improved the TS and adhesive properties of the polymer, which even acquired autohesive properties. The TS of III could be considerably increased by

Card 3/4

L 18660-63

ACCESSION NR: AP3005439

introduction of 0.05% Al as the group



The results of the study show the feasibility of controlled modification of the properties of polymers by introduction of traces of substances differing in chemical composition from the initial polymer. It is expected that further studies in this field will yield important theoretical and practical results. Orig. art. has: 1 figure and 5 tables.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy AN SSSR (Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 22Dec62

DATE ACQ: 06Sep63

ENCL: 00

SUB CODE: CH, MA

NO REF SOV: 002

OTHER: 001

Card 4/4

L 18899-63 EMP(j)/EPF(c)/EWT(m)/BDS ASD Pr-h/Pc-h RM/WW/MAY
 ACCESSION NR: AP3006593 S/0020/63/151/006/1329/1331

AUTHORS: Golubtsov, S. A.; Andrianov, K. A. (Corr. member AN SSSR);
 Turetskaya, P. A.; Belikova, Z. V.; Trofimova, I. V.; Morozov, N. G. 69

TITLE: Reaction mechanism in the formation of dialkyldichlorosilanes

SOURCE: AN SSSR. Doklady*, v. 151, no. 6, 1963, 1329-1331 7

TOPIC TAGS: dialkyldichlorosilane, dichlorosilane, silane, silicon
 chloride, copper chloride, hydration, methyl chloride, alkyl chloride

ABSTRACT: Authors showed that during the interaction of alkyl chlo-
 ride with silica in the presence of copper, dialkyldichlorosilanes
 are formed. Copper monochloride, which is formed during the reaction
 of methyl chloride with copper, plays an important part in the syn-
 thesis of dialkyldichlorosilanes. The process consists of the ad-
 sorption of alkylchloride and its interaction with copper forming
 CuCl. Copper monochloride reacts with silica forming an intermediate
 product SiCl₂. The removal of CuCl from the reaction zone by means
 of hydration with hydrogen, results in the discontinuation of

Card 1/2

L 18899-63

ACCESSION NR: AP3006593

diethyldichlorosilane formation. Orig. art. has: 1 table, 1 figure
and 6 formulas.

ASSOCIATION: none

SUBMITTED: 09Apr63

DATE ACQ: 27Sep63

ENCL: 00

SUB CODE: CH

NO REF SOV: 005

OTHER: 001

Card 2/2

ANDRIANOV, K.A.; FROMBERG, M.B., red.

[Heat-resistant organosilicon dielectrics] Teplo-
stoikiye kremniorganicheskie dielektriki. Moskva, Ener-
giya, 1964. 375 p. (Polimery v elektroizolyatsionnoi
tekhnike, no.10) (MIRA 18:1)

KARGIN, V.A., akademik; NEYMAN, M.B., prof.; BUCHACHENKO, A.L.,
kand. khim. nauk; MIKHAYLOV, V.V.; MASLOVA, I.P.;
LUKOVNIKOV, A.F., kand. khim. nauk; MATVEYEVA, Ye.N.;
BERLIN, A.A., prof.; YANOVSKIY, D.M., kand. khim. nauk;
POPOVA, Z.V., kand. khim. nauk; LEVANTOVSKAYA, I.I.;
KOVARSKAYA, B.M., kand. khim. nauk; ANDRIANOV, K.A., prof.;
KUZ'MINSKIY, A.S., prof.; SLONIMSKIY, G.L., prof.; MAKUNI,
Ye.B., tekhn. red.

[Aging and stabilization of polymers] Starenie i stabili-
zatsiia polimerov. Moskva, Izd-vo "Nauka," 1964. 330 p.
(MIRA 17:3)

1. Akademiya nauk SSSR. Institut khimicheskoy fiziki.
2. Chlen-korrespondent AN SSSR (for Andrianov).

I 22657-65 EPF(c)/EWP(j)/EWT(m)/T Pc-4/Pr-4 RM/MLK
 ACCESSION NR: AT5002127 S/0000/64/000/000/0160/0163

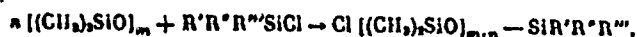
AUTHOR: Andrianov, K. A.; Severnnyy, V. V. β+1

TITLE: Telomerization of dimethylcyclsiloxanes as a method for preparing monomers and oligomers with various functional groups

SOURCE: AN SSSR. Institut neftekhimicheskogo sinteza. Sintez i svoystva monomerov (The synthesis and properties of monomers). Moscow, Izd-vo Nauka, 1964, 160-163

TOPIC TAGS: telomerization, silicoorganic compound, cyclsiloxane, siloxane polymer, chlorosilane copolymer, nucleophilic substitution

ABSTRACT: A general method for preparing oligomers of dimethylcyclsiloxanes with terminal functional groups is proposed and the reaction mechanism is discussed. The method is based on the published experimental studies of Andrianov et. al. Dimethylcyclsiloxanes were telomerized with alkyl- or arylchlorosilanes to react by the formula



Card 1/3

L 22657-65

ACCESSION NR: AT5002127

where $m=3, 4$; R^I, R^{II}, R^{III} = alkyl, aryl, or Cl; $n = 1, 2, 3$ or higher. The compounds contained chlorine atoms attached to silicon but the chlorine may be exchanged by suitable reagents to obtain hydroxy, alkoxy, acetoxy, or other functional terminal groups. The mechanism involves the formation of intermediate complexes with pentavalent silicon as shown in Fig. 1 of the Enclosure for $RSiCl_3$. The weakening of the oxygen-silicon bonds in dimethylcyclorosiloxane causes ring cleavage with addition of Cl to Si, and of the methyl-dichlorosilyl group to oxygen. The reaction can be defined as ionic, and as involving nucleophilic substitution of chlorine at the silicon atom in molecules of alkyl- or aryl-chlorosilanes by the group $(CH_3)_2SiO$ of dimethylcyclorosiloxane. Telomerization proceeds in the presence of $FeCl_3$ or of other aprotonic acids such as $AlCl_3$, $TiCl_4$ or $SnCl_4$. The mechanism is discussed in terms of the electronic structure of the substituting groups, and possible side reactions are explained. Orig. art. has: 1 table and 2 formulas.

ASSOCIATION: None

SUBMITTED: 30Jul64

ENCL: 01

SUB CODE: OC, GC

NO REF SOV: 013

OTHER: 001

Card

2/3

L 22657-65
ACCESSION NR: AT5002127

ENCL: 01

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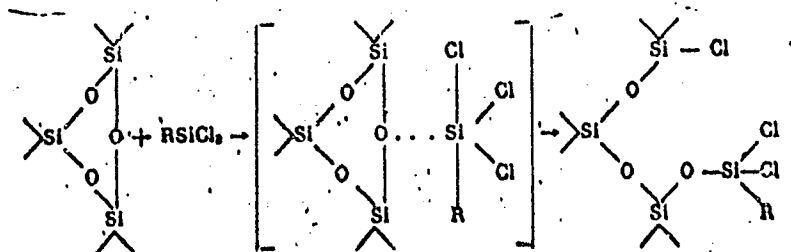


Fig. 1 - Mechanism of the telomerization of cyclosiloxane with RSiCl_3 .

Cord 3/3

ANDRIANOV, K.A.; GOLUBKOV, G.Ye.; ZABYRINA, K.I.; DZHENCHEL'SKAYA,
S.I.; KOLGANOVA, V.A.; BOLONDAYEVA, N.I.

Thermoxidative degradation of polyphenylpolydimethylsiloxanes.
Plast. massy no.2:22-25 '64. (MIRA 17:8)

L 27894-65 EWT(m)/EPA(s)-2/EPF(c)/T/EWP(j)/EPA(w)-2/EPR/EWA(c) Pc-4/Pab-10/
Pr-4/Fs-4/Pt-10 RPL WW/RM

ACCESSION NR: AP4012192

S/0191/64/000/002/0044/0048

AUTHORS: Andrianov, K.A.; Shugal, Ya.L.; Asnovich, E.Z.

66
64
B

TITLE: Glass textolite based on phenol-formaldehyde-resin modified with polyalumophenylsiloxane

SOURCE: Plasticheskiye massy*, no. 2, 1964, 44-48

TOPIC TAGS: glass textolite, fiberglass, pheno formaldehyde fiberglass, phenol formaldehyde polyalumophenylsiloxane fiberglass, phenol formaldehyde polyalumophenylsiloxane resin property, fiberglass property, water resistance, tensile strength, hardness, electric resistance, electric resistivity, heat stability, impact strength

ABSTRACT: Glass textolite (fiberglass) with improved electric insulating properties and high flexural and tensile strengths can be produced from phenol-formaldehyde resin modified with 0.5-10% polyalumophenylsiloxane. Incorporation of this siloxane improves adhesion of the binder to the filler, improves water-resistance tensile strength, hardness and electric insulating properties of the

Card 1/2

L 27894-65

ACCESSION NR: AP4012192

4
fiberglass. The specific impact strength of fiberglass prepared with different amounts of the siloxane exceeds 50kgs.cm./cm². Such fiberglass is thermally stable above 250C. Additional heat treatment (95-105C for 24 hours) of the glass textolite, prepared with 5-10% of the siloxane, increased the specific resistivity and the electric resistance of the fiberglass. "M. S. Gel'bras removed the lubricant." "S.I. Smirnova, B.M. Kil'berg and T.I. Il'ina participated in the work in the plant." Orig. art. has: 5 tables, 2 figures and 1 formula.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MT, OC

NR REF SOV: 000

OTHER: 000

Cord 2/2

L 39928-65 EWT(m)/EFF(c)/EPR/EWP(j)/T

Pc-4/Pr-4/PS-4 RM/WM

ACCESSION NR: AP4012186

S/0191/64/000/002/0022/0025

AUTHORS: Andrianov, K.A.; Golubkov, G.Ye.; Zabyrina, K.I.; Dzhenchel'skaya, S.I.; Kolganova, V.A.; Bolodayeva, N.I.

TITLE: Thermo-oxidative degradation of polyphenylpolydimethylsiloxanes

SOURCE: Plasticheskiye massy, no. 2, 1964, 22-25

TOPIC TAGS: polyphenylpolydimethylsiloxane, oxidation stability, thermo oxidative degradation, weight loss, bonding ability, polyorganosiloxane, Arrhenius equation

ABSTRACT: The oxidation stability of the films of two polyorganosiloxanes was studied in the 300-500C range by determining weight loss and bonding ability over a period of up to 90 days. Figures 1 and 2 summarize the data obtained at 300, 350, 400, and 500C. Lifetime curves (figures 3 & 4) for the polymers were constructed based on these parameters. From these curves it is seen that although the bonding ability of the 2 polymers differs at the lower weight loss levels, it reaches agreement when the weight losses are stabilized (at 27, 30%). Calculations were made assuming the rate of aging (i.e.,

Cord 1/5

L 39928-65

ACCESSION NR: AP4012186

the change in polymer properties on aging), followed the Arrhenius equation: $\alpha_t = Ae^{-E/RT}$ using E, the activation energy, as 32 kcal./mole.

Calculations are in excellent agreement with experimental data. Orig. art. has: 12 figures, 1 table and 1 equation.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 03

SUB CODE:

NR REF SOV: 002

OTHER: 001

Card 2/5

ACCESSION NR: AP4018161

S/0191/64/000/003/0020/0022

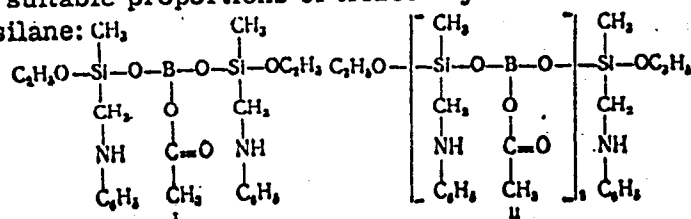
AUTHOR: Andrianov, K. A.; Khananashvili, L. M.; Varlamov, A. V.;
Tikhonov, V. S.

TITLE: Synthesis of borosiloxane oligomers and their stability to hydrolysis

SOURCE: Plasticheskiye massy*, no. 3, 1964, 20-22

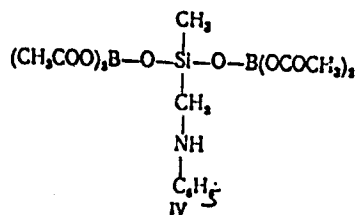
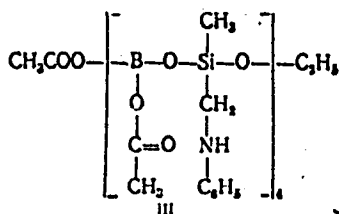
TOPIC TAGS: borosiloxane, oligomer, borosiloxane oligomer, hydrolytic stability, hydrolysis, phenylaminomethyl group

ABSTRACT: Borosiloxane oligomers containing phenylaminomethyl group at the Si atom were synthesized from suitable proportions of triacetoxyboron and methylphenylaminomethyldiethoxysilane:



Card 1/2

ACCESSION NR: AP4018161



The oligomers in which the number of phenylaminomethyl groups is equal to the number of B atoms in the molecule (compound III) or are greater than the number of B atoms (I and II) are stable to hydrolysis; the oligomer in which the number of B atoms exceeds the number of phenylaminomethyl groups (IV) is hydrolytically unstable. "Han En-tse took part in the experimental work".

Orig. art. has: 1 table, 1 figure and 4 formulae.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 27Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 002

OTHER: 001

Card 2/2

ACCESSION NR: AP4018162

S/0191/64/000/003/0022/0024

AUTHORS: Lobusevich, N.P.; Trofimova, I.V.; Andrianov, K.A.;
Golubtsov, S.A.

TITLE: Effect of metal halides on the activity of silicon-copper
alloys in the synthesis of methylchlorosilanes.

SOURCE: Plasticheskiye massy*, no.3, 1964, 22-24

TOPIC TAGS: silicon copper catalyst, catalyst activity, methylchlorosilane synthesis, dimethyldichlorosilane synthesis, cuprous chloride, zinc chloride, silicon copper alloys, sodium halide, catalyst activator, metal halides

ABSTRACT: Activation of silicon-copper alloys containing 20% silicon with 3-7% CuCl increases the dimethyldichlorosilane content in the mixture of methylchlorosilanes by 10-20% in reactions at 4.5-5 atmospheres pressure. (no favorable results at atmospheric pressure); the optimum temperature is 3600. ZnCl₂ appears to be a more effective activator than CuCl since its introduction increases the dimethyldi-

Card 1/2

ACCESSION NR: AP4018162

chlorosilane content by 15-30% and the general activity of the silicon-copper alloy by 1.5 to 2 times. The optimum ZnCl_2 concentration depends on the synthesis conditions, e.g., at atmospheric pressure, 370C, and 3-5% ZnCl_2 , the dimethyldichlorosilane yield is 65-67%; at 3 atmospheres, 290C, and 1% ZnCl_2 maximum yield was realized. The addition of 2-4% NaCl or NaF does not increase the yield of trimethylchlorosilane, but it does increase the yield of methyldichlorosilane from 5% to 12-20%. Orig. art. has: 4 tables and 5 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 27Mar64

ENCL: 00

SUB CODE: CH . .

NR REF SOV: 001

OTHER: 010

Card 2/2

ACCESSION NR: AP4025009

S/0082/84/000/003/0454/0457

AUTHOR: Andrianov, K. A.; Kuznetsova, I. K.; Yermakova, M. N.

TITLE: Polydimethylsiloxanes containing tris(trimethylsiloxy) and dimethylphosphinoxy terminal groups

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 454-457

TOPIC TAGS: liquid polydimethylsiloxane, terminal polymer group, tris(trimethylsiloxy) group, dimethylphosphinoxy group, viscous flow activation energy, polymer viscosity, polydimethylsiloxane viscosity, condensation synthesis, polymer synthesis, polymer molecule number

ABSTRACT: New liquid polydimethylsiloxanes containing the above terminal groups were synthesized by condensation of α, ω -dihydroxydimethylsiloxanes with the dimethylethoxysilylmethyl ester of dimethylphosphinic acid or tris(trimethylsiloxy) ethoxysilane, and some of their properties (molecular weight, glass-forming temperature, activation energy) studied. The reaction formula is

Card 1/3

ACCESSION NR: AP4025009

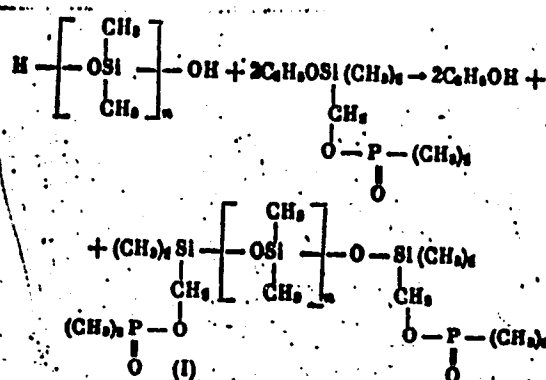
presented and properties tabulated. In the end products, n , denoting the number of polymer molecules, was equal to 9, 13, 42, 45, 75 and 120. Viscosity in the 20-120°C range was higher in polymers with terminal tris (trimethylsiloxy) groups than in those with the dimethylphosphinoxy group for the same degree of polymerization. The logarithm of viscosity, inversely dependent upon temperature, is also figured. The activation energy of viscous flow, calculated according to experimental data in the range studied, decreased upon increasing the distance between the terminal groups, which may point towards a comparatively great influence of these groups, as against that of the dimethylsiloxane groups of the backbone. The synthesis is described. Orig. art. has: 2 formulas, 2 tables and 4 figures.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Organoelemental Compounds, Academy of Sciences, SSSR)
SUBMITTED: 10Oct62 DATE ACQ: 17Apr64 ENCL: 01
SUB CODE: CH NO REF SOV: 005 OTHER: 001

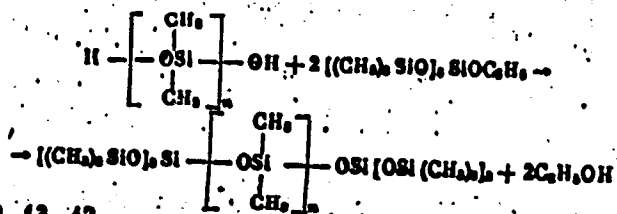
Cord 2/3

ACCESSION NR: AP4025009

ENCLOSURE, 01



where n = 9, 13, 45, 75, 120



where n = 9, 13, 42

Card 3/3

ACCESSION NR: AP4028548

S/0191/64/000/004/0027/0029

AUTHOR: Kuznetsova, A. G.; Andrianov, K. A.; Zhinkin, D. Ya.

TITLE: Formation of polymers by the hydrolytic co-condensation of diethyldichlorosilane (or dimethyldichlorosilane) and phenyltrichlorosilane

SOURCE: Plasticheskiye massy*, no. 4, 1964, 27-29

TOPIC TAGS: siloxane polymer, hydrolytic co condensation, diethyldichlorosilane, phenyltrichlorosilane, polydialkylphenylhydroxysiloxane copolymer, polydialkylphenylsiloxane copolymer, hydrolysis rate, reaction mechanism

ABSTRACT: This work was conducted to explain the possible mechanism by which the polymers are formed during hydrolytic condensation of equimolar mixtures of diethyldichlorosilane (I) or dimethyldichlorosilane (II) and phenyltrichlorosilane (III). The chemical composition (Si and OH content) and molecular weight distribution of the polymers were obtained by reaction of equimolar amounts of I (or II) with III; of diethylsilanediol (IV) (or dimethylsilanediol (V)) with phenylsilanetriol (VI); and of IV with III. Regardless of the initial monomer, the product

Card 1/3

ACCESSION NR. AP4033386

8/0062/64/000/004/0651/0656

AUTHOR: Andrianov, K. A.; Kuznetsova, I. K.

TITLE: Synthesis of certain phosphorus-containing organotitanium compounds

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 4, 1964, 651-656

TOPIC TAGS: polymers, heat-resistant polymers, organotitanium polymers, phosphorus containing organotitanium polymers, dimethylphosphinatobutylrxytitanium, polymers with Ti-O-T backbone, polymer with Ti-O-P backbone

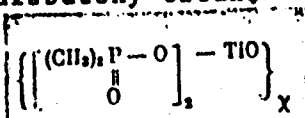
ABSTRACT: Polymers with Ti-O-Ti backbones and pendant dimethylphosphonate groups and polymers with Ti-O-P backbones with pendant alkoxy and methyl groups have been synthesized for the first time. Monomers with Ti-O-P backbones and functional groups linked with the titanium atom—dimethylphosphinatobutoxytitaniums—of the type

Card 1/4

ACCESSION NR. AP4033386

$[(CH_3)_2\overset{\overset{O}{||}}{P}-O]_n - Ti(-OC_4H_9)_{4-n}$, where $n=2, 3$, or 4 , were synthesized

by condensation at 140-150C of dimethylphosphinic acid with tetrabutoxytitanium, taken in the ratios 2:1, 3:1, 4:1. Hydrolysis of bis(dimethylphosphinato) dibutoxy-titanium yielded a powderlike polymer



(polymer I) which is insoluble in water and the usual organic solvents and has a melting point of 455-460C (thermomechanical curves 1 and 2 in Fig. 1 of the enclosure). Reactions of bis(dimethylphosphinato) dibutoxytitanium with triethyl- or methyldiphenylsilanol, or of bis(triethylsiloxy)dibutoxytitanium with dimethylphosphinic acid yielded solid products with a melting point (thermomechanical curves 3 and 4 in Fig. 1) and other properties similar to those of polymer I. Hetero-functional condensation of tetrabutoxytitanium with methylphosphinic

Card 2/4

ACCESSION NR. AP4033386 1

chloride yielded a resinlike polymer with Ti-O-P backbone and pendant butoxy- and methyl groups. Orig. art. has: 2 figures.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR
(Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 27Sep62

DATE ACQ: 15May64

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SUB CODE: CH

NO REF SOV: 002

OTHER: 002

Card 3/4

- (3/1) -

ACCESSION NR: AP4035102

S/0191/64/000/005/0023/0026

AUTHOR: Zhdanov, A. A.; Andrianov, K. A.; Baksheyeva, T. S.; Polikanin, N. A.; Levitskiy, M. M.

TITLE: Investigation of the properties of organosilicon polymers containing hydroxyphenyl groups.

SOURCE: Plasticheskiye massy*, no. 5, 1964, 23-26

TOPIC TAGS: organosilicon polymer, hydroxyphenyl containing siloxane, ester interchange reaction, polymer chain growth, diphenylolpropane, polyphenylbutoxy-siloxane, diene reaction product, molded composition, physical property, mechanical property, cross linkage, polymerization

ABSTRACT: The reaction of forming organosilicon compounds containing the hydroxyphenyl group, and the properties of the product polymers were investigated. The hydroxyphenyl group can be introduced into the siloxane chain by ester interchange of the diphenylolpropane (diene) with organosilicon polymers or oligomers containing butoxy groups on the silicon atom. If the oligomer has only terminal butoxy groups the product formed will have diene groups at the ends of the chain. If the

Card 1/2